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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/727,804
Filing Date: December 04, 2003
Appellant(s): DEE, RICHARD H.

David S. Bir
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 13 December 2010

appealing from the Office action mailed 11 May 2010.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-4, 6, 7, 10-13, 15, 16, 19 and 21-24 are pending.

Claims 4 and 13 are withdrawn from consideration.

Claims 1-3, 6, 7, 10-12, 15, 16, 19 and 21-24 are rejected.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

US 3,426,338	Gerding	04 February 1969
US 4,685,005	Fields, Jr.	04 August 1987
US 5,761,005	McKay et al.	02 June 1998
US 5,831,798	Muller et al.	03 November 1998
US 6,778,359	Iwama	17 August 2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 7, 10-12, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Gerding (US 3,426,338).

With respect to claims 1, 2 and 7, Gerding (US 3,426,338) teaches a data storage system comprising a plurality of read/write heads (includes A and B combined as a first read/write head, and C and D combined as a second read/write head, in FIG. 1, for instance), each read/write head of the plurality of read/write heads having a plurality of read/write elements (read/write head A/B includes read/write elements 4a/6a and 4b/6b, and read/write head C/D includes read/write elements 4c/6c and 4d/6d); a plurality of data channels (channels A-D), a subset of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (channels A and B are

connected to read/write head A/B, and channels C and D are connected to read/write head C/D); and a storage medium (line 15 in column 2, for instance, i.e., a “magnetic tape”), the storage medium including a plurality of storage bands (i.e., a storage medium inherently has storage areas/bands), wherein each read/write head is uniquely associated with a single storage band (i.e., a storage band including two tracks) such that the read/write heads are alignable with a single mode of operation (as shown in FIG. 1, for instance), and each read/write element is associated with a corresponding one of the plurality of data channels (read/write element 4a/6a is associated with channel A, read/write element 4b/6b is associated with channel B, read/write element 4c/6c is associated with channel C, and read/write element 4d/6d is associated with channel D) and capable of reading and writing data from or to corresponding tracks of a corresponding storage band (as shown in FIG. 1, for instance, i.e., read/write element 4a/6a of read/write head A/B is capable of reading and writing data from or to a track of a storage band different from read/write element 4b/6b of read/write head A/B, and read/write element 4c/6c of read/write head C/D is capable of reading and writing data from or to a track of a storage band different from read/write element 4d/6d of read/write head C/D) [**as per claim 1**]; wherein the data storage system comprises a magnetic tape drive (line 15 in column 2, for instance) [**as per claim 2**]; and wherein each of the plurality of read/write heads is coupled to at least two data channels (i.e., there would inherently be a data channel for reading data separate from a data channel for writing data) [**as per claim 7**].

With respect to claims 10-12, 15 and 16, Gerding (US 3,426,338) teaches a read/write head assembly comprising a plurality of read/write heads (includes A and B combined as a first composite read/write head, and C and D combined as a second composite read/write head, in FIG. 1, for instance), each read/write head of the plurality of read/write heads having a plurality of read/write elements (read/write head A/B includes read/write elements 4a/6a and 4b/6b, and read/write head C/D includes read/write elements 4c/6c and 4d/6d) each capable of reading and writing data from or to corresponding tracks of a corresponding storage band of a plurality of storage bands (as shown in FIG. 1, for instance, i.e., read/write element 4a/6a of read/write head A/B is capable of reading and writing data from or to a track of a storage band different from read/write element 4b/6b of read/write head A/B, and read/write element 4c/6c of read/write head C/D is capable of reading and writing data from or to a track of a storage band different from read/write element 4d/6d of read/write head C/D) arranged on a storage medium (line 15 in column 2, for instance, i.e., a “magnetic tape”) with each read/write head being uniquely associated with a single storage band (i.e., a storage band including two tracks); and a plurality of data channels (channels A-D) corresponding to the plurality of read/write elements (as shown in FIG. 1, for instance), a subset of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (channels A and B are connected to read/write head A/B, and channels C and D are connected to read/write head C/D) [**as per claim 10**]; wherein the storage medium comprises a magnetic tape (line 15 in column 2, for instance) [**as per claim 11**]; wherein the plurality of read/write heads comprises at least one read/write

head (read/write head A/B, for instance) having a read/write element (4a/6a, for instance) configured for read after write operation when the storage medium travels in a first direction and at least one read/write head (read/write head C/D, for instance) having a write/read element (6d/4d, for instance) configured for read after write operation when the storage medium travels in a second direction (i.e., when the second direction is parallel to or in the same direction as the first direction) [**as per claim 12**]; wherein the subset of the plurality of data channels comprises a read channel and a write channel (i.e., inherently there would be a read channel for the read element and a write channel for the write element in each read/write head) [**as per claim 15**]; and wherein each of the plurality of read/write heads is coupled to a plurality of data channels associated with one of the plurality of storage bands (i.e., there would inherently be a data channel for reading data separate from a data channel for writing data) [**as per claim 16**].

3. Claims 1, 7, 10, 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by McKay et al. (US 5,761,005).

With respect to claims 1 and 7, McKay et al. (US 5,761,005) teaches a data storage system (FIG. 4, for instance) comprising a plurality of read/write heads (each 60), each read/write head of the plurality of read/write heads having a plurality of read/write elements (each 62, see line 30 in column 3, for instance); a plurality of data channels (each 66), a subset of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (as shown in FIG. 4, for instance); and a

storage medium (12), the storage medium including a plurality of storage bands (i.e., a storage medium inherently has storage areas/bands), wherein each read/write head is uniquely associated with a single storage band such that the read/write heads are alignable with a single mode of operation (as shown in FIG. 4, for instance), and each read/write element is associated with a corresponding one of the plurality of data channels and operable to read and write data from or to corresponding tracks of a corresponding storage band (as shown in FIG. 4, for instance, as it is structurally no different from that set forth in the claims) [**as per claim 1**]; wherein each of the plurality of read/write heads is coupled to at least two data channels (as shown in FIG. 4, for instance) [**as per claim 7**].

With respect to claims 10, 16 and 19, McKay et al. (US 5,761,005) teaches a read/write head assembly (FIG. 4, for instance) comprising a plurality of read/write heads (each 60), each read/write head of the plurality of read/write heads having a plurality of read/write elements (each 62, see line 30 in column 3, for instance) each operable to read and write data from or to corresponding tracks of a corresponding storage band of a plurality of storage bands arranged on a storage medium (12) with each read/write head being uniquely associated with a single storage band (as shown in FIG. 4, for instance); and a plurality of data channels (each 66) corresponding to the plurality of read/write elements, a subset of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (as shown in FIG. 4, for instance) [**as per claim 10**]; wherein each of the plurality of read/write heads is coupled to a plurality of data channels associated with one of the plurality of storage bands (as shown in FIG.

4, for instance) [**as per claim 16**]; and wherein the read/write head assembly further comprises an actuation unit (10, FIG. 1B, for instance), the actuation unit operable to align at least one read/write head of the plurality of read/write heads with the corresponding storage band of the plurality of storage bands with a fine positioning operation [**as per claim 19**].

4. Claims 1, 2, 6, 7, 10, 11, 16, 21 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Muller et al. (US 5,831,798).

With respect to claims 1, 2, 6 and 7, Muller et al. (US 5,831,798) teaches a data storage system comprising a plurality of read/write heads (86a and 86b in FIG. 8b, for instance), each read/write head of the plurality of read/write heads having a plurality of read/write elements (each 89 and each 88, for instance); a plurality of data channels (each of the read/write elements would inherently be connected to a data channel for processing data), a subset of the plurality of data channels coupled to a read/write head of the plurality of read/write heads; and a storage medium (5, FIG. 2), the storage medium including a plurality of storage bands (i.e., a storage medium inherently has storage areas/bands), wherein each read/write head is uniquely associated with a single storage band such that the read/write heads are alignable with a single mode of operation (as shown in FIG. 8b, for instance), and each read/write element is associated with a corresponding one of the plurality of data channels and capable of reading and writing data from or to corresponding tracks of a corresponding storage band (as shown in FIG. 8b, for instance, as it is structurally no different from that set forth in the claims)

[**as per claim 1**]; wherein the data storage system comprises a magnetic tape drive (line 1 of the abstract, for instance) [**as per claim 2**]; wherein each of the plurality of read/write heads is displaced in a direction of travel of the storage medium relative to an adjacent read/write head (as shown in FIG. 8b, for instance) [**as per claim 6**]; and wherein each of the plurality of read/write heads is coupled to at least two data channels (i.e., inherently there would be a data channel connected to each of the read/write elements for each read/write head) [**as per claim 7**].

With respect to claims 10, 11 and 16, Muller et al. (US 5,831,798) teaches a read/write head assembly comprising a plurality of read/write heads (86a and 86b in FIG. 8b, for instance), each read/write head of the plurality of read/write heads having a plurality of read/write elements (each 89 and each 88, for instance) each capable of reading and writing data from or to corresponding tracks of a corresponding storage band of a plurality of storage bands arranged on a storage medium (5, FIG. 2) with each read/write head being uniquely associated with a single storage band (as shown in FIG. 8b, for instance, as it is structurally no different from that set forth in the claims); and a plurality of data channels (each of the read/write elements would inherently be connected to a data channel for processing data) corresponding to the plurality of read/write elements, a subset of the plurality of data channels coupled to a read/write head of the plurality of read/write heads [**as per claim 10**]; wherein the storage medium comprises a magnetic tape (5, FIG. 2) [**as per claim 11**]; and wherein each of the plurality of read/write heads is coupled to a plurality of data channels associated with one of the plurality of storage bands (i.e., inherently there would be a data channel

connected to each of the read/write elements for each read/write head) [**as per claim 16**].

With respect to claims 21 and 22, Muller et al. (US 5,831,798) teaches a data storage system comprising a plurality of read/write heads (86a and 86b in FIG. 8b, for instance) each associated with a corresponding one of a plurality of storage bands extending across a magnetic storage medium (5, FIG. 2, i.e., a storage medium inherently has storage areas/bands) wherein each of the plurality of read/write heads is displaced along a direction of travel of the magnetic storage medium relative to an adjacent read/write head (as shown in FIG. 8b, for instance) and wherein each of the plurality of read/write heads is coupled to at least one of a plurality of data channels (i.e., inherently there would be a data channel connected to each of the read/write elements for each read/write head) [**as per claim 21**]; wherein each of the plurality of read/write heads comprises a plurality of read/write elements (each 89 and each 88, for instance) for reading from and writing to, respectively, a corresponding one of a plurality of data channels associated with each of the plurality of storage bands on the magnetic storage medium [**as per claim 22**].

5. Claims 1-3, 6, 7, 10-12, 15, 16, 19 and 21-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Iwama (US 6,778,359).

With respect to claims 1-3, 6 and 7, Iwama (US 6,778,359) teaches a data storage system (FIG. 5, for instance) comprising a plurality of read/write heads (includes 1c and 2c, for instance), each read/write head of the plurality of read/write heads having

a plurality of read/write elements (includes 11/12/13/14 and 21/22); a plurality of data channels (inherently connected to each of the read/write elements), a subset of the plurality of data channels coupled to a read/write head of the plurality of read/write heads; and a storage medium (5), the storage medium including a plurality of storage bands (i.e., a storage medium inherently has storage areas/bands), wherein each read/write head is uniquely associated with a single storage band such that the read/write heads are alignable with a single mode of operation (as shown in FIG. 5, for instance), and each read/write element is associated with a corresponding one of the plurality of data channels and capable of reading and writing data from or to corresponding tracks of a corresponding storage band (as shown in FIG. 5, for instance, as it is structurally no different from that set forth in the claims) [**as per claim 1**]; wherein the data storage system comprises a magnetic tape drive (line 1 of the abstract, for instance) [**as per claim 2**]; wherein the plurality of read/write heads comprises at least one read/write head (1c) having a read/write element configured for read after write operation as the storage medium travels in a first direction and at least one read/write head (2c) having a write/read element configured for read after write operation as the storage medium travels in a second direction opposite the first direction (as shown in FIG. 5, for instance) [**as per claim 3**]; wherein each of the plurality of read/write heads is displaced in a direction of travel of the storage medium relative to an adjacent read/write head (as shown in FIG. 6, for instance, i.e., left-most 1c is displaced from right-most 2c in the direction of travel) [**as per claim 6**]; and wherein each of the plurality of read/write heads is coupled to at least two data channels (i.e., inherently

there would be a data channel for the read element and a data channel for the write element for each read/write head) [**as per claim 7**].

With respect to claims 10-12, 15, 16 and 19, Iwama (US 6,778,359) teaches a read/write head assembly (FIG. 5, for instance) comprising a plurality of read/write heads (includes 1c and 2c, for instance), each read/write head of the plurality of read/write heads having a plurality of read/write elements (includes 11/12/13/14 and 21/22) each capable of reading and writing data from or to corresponding tracks of a corresponding storage band of a plurality of storage bands arranged on a storage medium (5) with each read/write head being uniquely associated with a single storage band (as shown in FIG. 5, for instance, as it is structurally no different from that set forth in the claims); and a plurality of data channels (inherently connected to each of the read/write elements) corresponding to the plurality of read/write elements, a subset of the plurality of data channels coupled to a read/write head of the plurality of read/write heads [**as per claim 10**]; wherein the storage medium comprises a magnetic tape (5) [**as per claim 11**]; wherein the plurality of read/write heads comprises at least one read/write head (1c) having a read/write element configured for read after write operation when the storage medium travels in a first direction and at least one read/write head (2c) having a write/read element configured for read after write operation when the storage medium travels in a second direction (as shown in FIG. 5, for instance) [**as per claim 12**]; wherein the subset of the plurality of data channels comprises a read channel and a write channel (i.e., inherently there would be a read channel for the read element and a write channel for the write element in each

read/write head) [**as per claim 15**]; wherein each of the plurality of read/write heads is coupled to a plurality of data channels associated with one of the plurality of storage bands (i.e., inherently there would be a data channel for the read element and a data channel for the write element for each read/write head) [**as per claim 16**]; and wherein the read/write head assembly further comprises an actuation unit (line 62 in column 4, for instance), the actuation unit operable to align at least one read/write head of the plurality of read/write heads with the corresponding storage band of the plurality of storage bands with a fine positioning operation [**as per claim 19**].

With respect to claims 21-23, Iwama (US 6,778,359) teaches a data storage system (FIG. 6, for instance) comprising a plurality of read/write heads (left-most 1c and right-most 2c) each associated with a corresponding one of a plurality of storage bands extending across a magnetic storage medium (5) wherein each of the plurality of read/write heads is displaced along a direction of travel of the magnetic storage medium relative to an adjacent read/write head (as shown in FIG. 6, for instance) and wherein each of the plurality of read/write heads is coupled to at least one of a plurality of data channels (i.e., inherently there would be a data channel for the read element and a data channel for the write element for each read/write head) [**as per claim 21**]; wherein each of the plurality of read/write heads comprises a plurality of read/write elements (includes 11/12/13/14 and 21/22) for reading from and writing to, respectively, a corresponding one of a plurality of data channels associated with each of the plurality of storage bands on the magnetic storage medium (i.e., inherently there would be a data channel for the read element and a data channel for the write element for each read/write head) [**as per**

claim 22]; and wherein at least one (left-most 1c) of the plurality of read/write heads comprises a read/write element configured for read after write operation as the magnetic storage medium travels in a first direction and at least one (right-most 2c) of the plurality of read/write heads comprises a write/read element configured for read after write operation as the magnetic storage medium travels in a direction opposite the first direction (as shown in FIG. 6, for instance) [**as per claim 23**].

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Muller et al. (US 5,831,798) in view of Fields, Jr. (US 4,685,005).

The incorporation of Fields, Jr. (US 4,685,005) does not result in a new issue or constitute a new ground of rejection as Fields, Jr. (US 4,685,005) is added only as directly corresponding evidence to support the prior common knowledge finding of official notice taken in the prior office action. See MPEP 2144.03.

Muller et al. (US 5,831,798) teaches the data storage system as detailed in paragraph 4, supra. Muller et al. (US 5,831,798), however, remains silent as to

"wherein at least one of the plurality of read/write heads comprises a read/write element configured for read after write operation as the magnetic storage medium travels in a first direction and at least one write/read element configured for read after write operation as the magnetic storage medium travels in a direction opposite the first direction."

Fields, Jr. (US 4,685,005), for instance, teaches that it is notoriously old and well known in the art to have a head (13) comprise a read/write element (R1/W1) configured for read after write operation as a magnetic storage medium (10) travels in a first direction (11) and at least one write/read element (W2/R2) configured for read after write operation as the magnetic storage medium travels in a direction (12) opposite the first direction for the purpose of enabling bi-directional data verification (lines 1-4 in the abstract, for instance). It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had at least one of the plurality of read/write heads of Muller et al. (US 5,831,798) comprise a read/write element configured for read after write operation as the magnetic storage medium travels in a first direction and at least one write/read element configured for read after write operation as the magnetic storage medium travels in a direction opposite the first direction, as taught by Fields, Jr. (US 4,685,005), for instance. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had at least one of the plurality of read/write heads of Muller et al. (US 5,831,798) comprise a read/write element configured for read after write operation as the magnetic storage

medium travels in a first direction and at least one write/read element configured for read after write operation as the magnetic storage medium travels in a direction opposite the first direction, as taught by Fields, Jr. (US 4,685,005), for instance, since such enables bi-directional data verification.

(10) Response to Argument

Rejection of Claims 1, 2, 7, 10-12, 15 and 16 under 35 U.S.C. 102(b)

as being anticipated by Gerding (US 3,426,338)

The appellant argues that Gerding (US 3,426,338) "fails to anticipate 'a plurality of read/write heads, each read/write head … having a plurality of read/write elements.'" This argument, however, is not found to be persuasive as Gerding (US 3,426,338) does teach a plurality of read/write heads (includes A and B combined as a first composite read/write head, and C and D combined as a second composite read/write head, in FIG. 1, for instance), each read/write head having a plurality of read/write elements (read/write head A/B includes read/write elements 4a/6a and 4b/6b, and read/write head C/D includes read/write elements 4c/6c and 4d/6d).

The appellant further contends that Gerding (US 3,426,338) does not teach "a subset of a plurality of data channels coupled to a read/write head." This argument, however, is not found to be persuasive as Gerding (US 3,426,338) does teach a subset (channels A and B, for instance) of a plurality of data channels (i.e., channels A-D) coupled to a read/write head (i.e., read/write head A/B, for instance), and a subset

(channels C and D, for instance) of the plurality of data channels coupled to a read/write head (i.e., read/write head C/D, for instance).

The appellant also asserts that Gerding (US 3,426,338) "does not disclose that each read/write element is associated with a corresponding one of a plurality of data channels and operable to read and write data from or to corresponding tracks of a corresponding storage band." This argument, however, is not found to be persuasive as Gerding (US 3,426,338) does teach each read/write element is associated with a corresponding one of a plurality of data channels (read/write element 4a/6a is associated with channel A, read/write element 4b/6b is associated with channel B, read/write element 4c/6c is associated with channel C, and read/write element 4d/6d is associated with channel D) and capable of reading and writing data from or to corresponding tracks of a corresponding storage band (as shown in FIG. 1, for instance, i.e., read/write element 4a/6a of read/write head A/B is capable of reading and writing data from or to a track of a storage band different from read/write element 4b/6b of read/write head A/B, and read/write element 4c/6c of read/write head C/D is capable of reading and writing data from or to a track of a storage band different from read/write element 4d/6d of read/write head C/D).

With respect to claim 12, the appellant lastly contends that Gerding (US 3,426,338) "does not disclose that the magnetic tape can travel in a first and second direction (see Fig. 1) and does not disclose read/write heads that include a first configured for read after write operation when the storage medium travels in a first direction and a second read/write head configured for read after write operation when

the storage medium travels in a second direction." This argument, however, is not found to be persuasive for the following: Claim 12 is only directed to a "read/write head assembly," per se, and not to a combination of a magnetic tape with a read/write head assembly and as such, limitations pertaining to the magnetic tape can only be accorded weight to the extent that they affect the structure of the read/write head assembly. With this in mind, Gerding (US 3,426,338) teaches that the plurality of read/write heads comprises at least one read/write head (read/write head A/B, for instance) having a read/write element (4a/6a, for instance) configured for read after write operation when the storage medium travels in a first direction and at least one read/write head (read/write head C/D, for instance) having a write/read element (6d/4d, for instance) configured for read after write operation when the storage medium travels in a second direction (i.e., when the second direction is parallel to or in the same direction as the first direction). Note that the limitation in claim 12 does not require that the second direction be "opposite the first direction" as in claim 3, for instance, and is therefore different in scope and does not preclude an interpretation of the second direction being parallel to or in the same direction as the first direction.

Rejection of Claims 1, 7, 10, 16 and 19 under 35 U.S.C. 102(b)

as being anticipated by McKay et al. (US 5,761,005)

The appellant argues that McKay et al. (US 5,761,005) "does not disclose read/write heads having a plurality of read/write elements, storage bands each having a plurality of tracks, or data channels associated with each read/write element." This

argument, however, is not found to be persuasive for the following: McKay et al. (US 5,761,005) does teach read/write heads (each 60, FIG. 4) having a plurality of read/write elements (each 62, see line 30 in column 3, for instance). Although each element 60 is referred to in McKay et al. (US 5,761,005) as a "slider," it is more commonly referred to as a "Magnetic Head Slider" (line 14 in column 11, for instance) or simply magnetic head, and as each slider includes a read/write function by virtue of the presence of read/write transducers/elements 62, each slider may be regarded as a read/write head. McKay et al. (US 5,761,005) also teaches a storage medium (12) having a plurality of tracks (lines 6-7 in column 7, for instance), and these tracks can be grouped into different storage areas or bands. The appellant has not distinguished the claimed storage band from just a mere grouping of tracks. Lastly, McKay et al. (US 5,761,005) teaches data channels (each 66). Although each element 66 is referred to in McKay et al. (US 5,761,005) as "conductor circuitry," it channels data to and from the read/write transducers/elements 62, and therefore each element 66 may be regarded as a data channel.

The appellant also contends that McKay et al. (US 5,761,005) does not teach "that each read/write head is uniquely associated with a single storage band and alignable with a single mode of operation." This argument, however, is not found to be persuasive as McKay et al. (US 5,761,005) clearly shows that the heads are movable and thus alignable such that each read/write head is uniquely associated with a single storage band (i.e., a group of tracks) at the time of alignment.

With respect to claim 10, the appellant further asserts that McKay et al. (US 5,761,005) "fails to disclose a read/write heads having read/write elements operable to read and write to corresponding tracks of a corresponding storage band with each read/write head being uniquely associated with a single storage band [and] fails to disclose a plurality of data channels corresponding to the plurality of read/write elements with a subset of the plurality of data channels coupled to a read/write head of the plurality o f read/write heads." This argument, however, is not found to be persuasive as McKay et al. (US 5,761,005) teaches read/write heads (each 60) having read/write elements (each 62, see line 30 in column 3, for instance) operable to read and write to corresponding tracks (lines 6-7 in column 7, for instance) of a corresponding storage band (i.e., a group of tracks) with each read/write head being uniquely associated with a single storage band at the time of alignment and a plurality of data channels (each 66) corresponding to the plurality of read/write elements with a subset of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (as shown in FIG. 4, for instance).

With respect to claim 7, the appellant additionally argues that McKay et al. (US 5,761,005) "fails to disclose any data channels and fails to disclose any relationship between the data channels and read/write heads." This argument, however, is not found to be persuasive as McKay et al. (US 5,761,005) teaches data channels (each 66) and clearly shows relationship between the data channels and read/write heads (each 60) as shown in FIG. 4, for instance. It is noted that only the right-most read/write

head is labeled 60, and only details of the left-most read/write head are shown, but it is clearly taught as detailed in lines 18-24 in column 8, for instance.

With respect to claim 16, the appellant argues that McKay et al. (US 5,761,005) "fails to disclose any data channels or storage bands and therefore fails to disclose each of a plurality of read/write heads coupled to a plurality of data channels associated with one of the storage bands." This argument, however, is not found to be persuasive as McKay et al. (US 5,761,005) teaches data channels (each 66) and storage bands (i.e., a group of tracks) and discloses that each of a plurality of read/write heads (each 60) is coupled to a plurality of data channels (each 66) associated with one of the storage bands (i.e., a group of tracks).

With respect to claim 19, the appellant argues that McKay et al. (US 5,761,005) "does not disclose any actuation unit." This argument, however, is not found to be persuasive as McKay et al. (US 5,761,005) teaches actuation unit (10, FIG. 1B, for instance).

With respect to claim 19, the appellant lastly argues that McKay et al. (US 5,761,005) does not teach "the type of positioning operation performed by the actuation unit." Appellant's attention is directed to lines 5-15 in column 7, for instance, and it is noted that the claimed term "fine" is a relative term and that the disclosed "may only be required to move half of the distance of a single transducer-slider assembly" of the actuation unit (10) may be broadly construed as a "fine positioning operation."

Rejection of Claims 1, 2, 6, 7, 10, 11, 16, 21 and 22 under 35 U.S.C. 102(b) as being anticipated by Muller et al. (US 5,831,798)

The appellant seems to argue that the examiner cannot call elements 86a and 86b "heads" because element 29b, which includes elements 86a and 86b, is disclosed as a "head." This argument, however, is not found to be persuasive as element 29b is disclosed as a "compound magnetic head" (lines 22-23 in column 7, for instance) and a "compound magnetic head" is made by combining magnetic heads (see lines 15-19 in column 7, for instance). Just because Muller et al. (US 5,831,798) chooses to call elements 86a and 86b "head faces" does not preclude these elements from reading on appellant's claimed read/write heads.

The appellant also contends that Muller et al. (US 5,831,798) "does not disclose read/write elements, storage bands, tracks, or data channels." This argument, however, is not found to be persuasive as Muller et al. (US 5,831,798) does disclose read/write elements (each 88 and each 89, for instance), tracks (as detailed throughout the reference), storage bands (i.e., grouping of tracks corresponding to each grouping of read/write head elements), and data channels (each of the read/write elements would inherently be connected to a data channel for processing data).

The appellant further maintains that Muller et al. (US 5,831,798) "does not disclose a plurality of read/write heads with each having a plurality of read/write elements." This argument, however, is not found to be persuasive as Muller et al. (US 5,831,798) does disclose a plurality of read/write heads (86a and 86b, FIG. 8b) with each having a plurality of read/write elements (each 89 and each 88).

The appellant additionally contends that Muller et al. (US 5,831,798) does not teach "that each read/write head is uniquely associated with a single storage band." This argument, however, is not found to be persuasive as each read/write head (86a and 86b) of Muller et al. (US 5,831,798) is uniquely associated (i.e., associated by its specified location of read/write elements 89 and 88) with a single storage band (i.e., grouping of tracks corresponding to each grouping of read/write head elements). The appellant has not distinguished the claimed "uniquely associated" from a specified location of read/write elements corresponding to each read/write head. The appellant has not distinguished the claimed storage band from just a mere grouping of tracks corresponding to each grouping of read/write head elements.

The appellant also maintains that Muller et al. (US 5,831,798) does not teach "that the read/write heads are alignable with a single mode of operation." This argument, however, is not found to be persuasive as Muller et al. (US 5,831,798) clearly teaches that compound head 29 can be rotated 180° (lines 51-52 in column 7, for instance) and such rotation would require complete alignment after the single mode of operation step of rotation is initiated.

The appellant additionally argues that Muller et al. (US 5,831,798) "does not disclose a plurality of data channels with a subset of the plurality of data channels coupled to a read/write head." This argument, however, is not found to be persuasive as each read/write element of Muller et al. (US 5,831,798) must be connected to a data channel in order to transmit/receive data from that element. Therefore, it is inherent that a subset of the plurality of data channels would be coupled to each read/write head.

The appellant further asserts that Muller et al. (US 5,831,798) "does not disclose a storage medium including a plurality of storage bands each having tracks where each read/write element is operable to read and write data from or to corresponding tracks of a corresponding storage band." This argument, however, is not found to be persuasive as Muller et al. (US 5,831,798) does teach a storage medium (5) including a plurality of storage bands (i.e., grouping of tracks) each having tracks (detailed throughout the reference) where each read/write element (88 or 89) is operable to read and write data from or to corresponding tracks of a corresponding storage band (i.e., grouping of tracks corresponding to each grouping of read/write head elements).

With respect to claim 21, the appellant argues that Muller et al. (US 5,831,798) "does not disclose a plurality of read/write heads each displaced along a direction of travel of the magnetic storage medium and each associated with a corresponding one of a plurality of storage bands with each of the plurality of read/write heads coupled to at least one of a plurality of data channels." This argument, however, is not found to be persuasive as Muller et al. (US 5,831,798) does teach a plurality of read/write heads (86a and 86b, FIG. 8b) each displaced along a direction of travel of the magnetic storage medium (i.e., one is on the left and the other is on the right) and each associated with a corresponding one of a plurality of storage bands (i.e., grouping of tracks corresponding to each grouping of read/write head elements) with each of the plurality of read/write heads coupled to at least one of a plurality of data channels (each read/write head element must be connected to a data channel in order to transmit/receive data from that element).

With respect to claim 22, the appellant lastly argues that Muller et al. (US 5,831,798) "does not inherently disclose a plurality of read/write elements for reading from and writing to a corresponding one of a plurality of data channels associated with each of the plurality of storage bands." This argument, however, is not found to be persuasive as Muller et al. (US 5,831,798) does teach a plurality of read/write elements (89, for instance) for reading from and writing to a corresponding one of a plurality of data channels (i.e., each read/write head element must be connected to a corresponding data channel in order to transmit/receive data from that element) associated with each of a plurality of storage bands (i.e., grouping of tracks corresponding to each grouping of read/write head elements).

Rejection of Claims 1-3, 6, 7, 10-12, 15, 16, 19 and 21-23 under 35 U.S.C. 102(e) as being anticipated by Iwama (US 6,778,359)

The appellant argues that Iwama (US 6,778,359) "does not disclose a plurality of read/write heads each associated with a plurality of read/write elements." This argument, however, is not found to be persuasive as Iwama (US 6,778,359) does teach a plurality of read/write heads (includes 1c and 2c, for instance), each read/write head of the plurality of read/write heads having a plurality of read/write elements (includes 11/12/13/14 and 21/22). Note that the term "elements" can be broadly construed to merely mean components.

The appellant further asserts that Iwama (US 6,778,359) "does not disclose that each read/write head is uniquely associated with a single storage band such that the

read/write heads are alignable with a single mode of operation." This argument, however, is not found to be persuasive as Iwama (US 6,778,359) does teach that each read/write head (1c and 2c, for instance) is uniquely associated with a single storage band (i.e., grouping of tracks aligned with and adjacent to each head) such that the read/write heads are alignable with a single mode of operation (as shown in FIG. 5, for instance).

The appellant additionally maintains that Iwama (US 6,778,359) "does not disclose that each read/write head is uniquely associated with a corresponding storage band, which contains a plurality of tracks." This argument, however, is not found to be persuasive as Iwama (US 6,778,359) does teach that each read/write head (1c and 2c, for instance) is uniquely associated with a corresponding storage band (.e., grouping of tracks aligned with and adjacent to each head), which contains a plurality of tracks (i.e., the storage band for head 1c would include a track aligned with 1c and a track immediately above 1c, and the storage band for head 2c would include a track aligned with 2c and a track immediately below 2c, for instance).

With respect to claim 6, the appellant lastly argues that Iwama (US 6,778,359) does not teach "that each of the plurality of read/write heads is displaced in a direction of travel of the storage medium relative to an adjacent read/write head." This argument, however, is not found to be persuasive as Iwama (US 6,778,359) does teach that each of the plurality of read/write heads (1c, 2c, 8 and 9) is displaced in a direction of travel of the storage medium relative to an adjacent read/write head. Note that head 1c is tilted clockwise and thus the right side thereof is displaced to the right of head 2c, head 8 is

displaced to the right of head 1c and is tilted clockwise and thus the left side thereof is displaced to the left of head 9. Also, since the claims are written using the inclusive language "comprising," in addition to the claimed "plurality of read/write heads" (1c and 9), there may be an additional set of read/write heads (2c and 8). Each of the claimed plurality of read/write heads (2c and 8) is displaced in a direction of travel of the storage medium relative to an adjacent read/write head.

Rejection of Claim 24 under 35 U.S.C. 103(a) as being unpatentable over Muller et al. (US 5,831,798)

"Appellant disagrees that the claimed arrangement is notoriously well known and requests the Examiner to provide a proper citation to a prior art reference… that it is so notoriously well known to configure the read/write heads with read/write elements as claimed by Applicant." Appellant's attention is directed to Fields, Jr. (US 4,685,005). The incorporation of Fields, Jr. (US 4,685,005) into the rejection under 35 U.S.C. 103(a), supra, does not result in a new issue or constitute a new ground of rejection as Fields, Jr. (US 4,685,005) is added only as directly corresponding evidence to support the prior common knowledge finding of official notice taken in the prior office action. ***See MPEP 2144.03***. Fields, Jr. (US 4,685,005) teaches that it is notoriously old and well known in the art to have a head (13) comprise a read/write element (R1/W1) configured for read after write operation as a magnetic storage medium (10) travels in a first direction (11) and at least one write/read element (W2/R2) configured for read after write operation as the magnetic storage medium travels in a direction (12) opposite the

first direction for the purpose of enabling bi-directional data verification (lines 1-4 in the abstract, for instance). One of ordinary skill in the art would have been motivated to have had at least one of the plurality of read/write heads of Muller et al. (US 5,831,798) comprise a read/write element configured for read after write operation as the magnetic storage medium travels in a first direction and at least one write/read element configured for read after write operation as the magnetic storage medium travels in a direction opposite the first direction, as taught by Fields, Jr. (US 4,685,005), for instance, since such enables bi-directional data verification. The examiner finds the appellant's teaching away argument unpersuasive as proper motivation for the combination is taught and suggested by Fields, Jr. (US 4,685,005) and was indicated in the original taking of official notice.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,
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